port, are on man and his environment. Major J. W. Powell addressed his audience on the 'Relation of Primitive Peoples to Environment, Illustrated by American Examples,' while Professor O. T. Mason chose as his topic 'The Influence of Environment upon Human Industries or Arts.'

It is needless to say that both lectures are learned and instructive. Major Powell explains the origin of the activities of culture and their modification by the qualities and properties of external existences. He refers to those forms of environment which appear as institutions, opinions and languages, and weighs their values.

Professor Mason begins with man's cosmic environment and its influence on his industrial activities, and devotes his chief attention to the especially American environments and their association with aboriginal industries. The table which he presents in this connection is clear, full and suggestive.

There is no question of the high value of such thoughtful contributions as these to the science of man. But sometimes there is a danger that man himself may be lost to sight in the contemplation of his surroundings. Forty years ago Draper and Buckle saw nothing in man but a creature of environment; whereas, to-day, the highest note of anthropologic science is to chant the victory of man over his environment by the powers of his psychical nature.

SLAVERY OF THE AMERICAN INDIANS.

In the study of native American ethnography the question of human slavery has important bearings. Before the discovery, it prevailed in Mexico and northern South America, perhaps on the northwest coast. The Spanish adventurers did not hesitate a moment to enslave the Indians, but neither the monarchs of Spain nor the Catholic clergy authorized such proceedings. The latter, indeed, notably Father Montesinos and the famous Las Casas, protested against it in the strongest terms, as has been again shown by Dr. Marc F. Vallette, in his 'Studies in American History.'

An article on 'Canadian Indian Slavery in the Eighteenth Century,' in the *Proceedings* of the Canadian Institute, February, 1897, by Dr. James B. Hamilton, proves that Indian slaves were quite numerous there until within the present century, and, according to the Abbé Tanguay, were found also among the Catholic population. They bore the name *Panis*, that is, Pawnees; as it seems that members of this tribe were captured by the Algonkins and sold to the early traders, whence all enslaved Indians came to be so called.

None of the northern tribes, however, was successfully reduced to a state of bondage, and this accounts largely for their destruction as a race.

D. G. Brinton.
University of Pennsylvania.

NOTES ON INORGANIC CHEMISTRY.

At the conversazione of the Royal Society, May 19th, among interesting exhibits was one by C. T. Heycock and F. H. Neville of a curious alloy of silver and zinc, "which would have warmed the hearts of the old-time alchemists." This alloy is of the ordinary color of silver, but when warmed up to 300° C. and then suddenly cooled it becomes the color of copper. On reheating and cooling slowly it resumes its original color. The same effect is produced by heating in air, in hydrogen or in a vacuum.

The *Chemical News* quotes from the Sanitary Chronicles of the parish of St. Marylebone, for the month ending March 31, 1897, the reports of work done by Dr. Winter Blythe on the disinfecting properties of formaldehyde, commonly known in solution as formalin. One part in ten thousand suf-

fices to preserve milk, soup and similar articles for a considerable time. The aqueous solution, when exposed in dishes, has a tendency to polymerize, its disinfecting qualities becoming by this much impaired. It is as a gas that formaldehyde exercises its valuable properties most efficiently. A comparative trial was made with sulfur dioxid and formaldehyde in two rooms in which various bacilli were exposed. The growth of the typhoid bacillus and the anthrax bacillus were not prevented by sulfur dioxid, but were by formaldehyde. The fumes of formaldehyde are very irritating to the eyes, but in general are far less disagreeable than those of burning sulfur. In conclusion, Dr. Blythe considers that formaldehyde is superior to sulfur dioxid as a disinfectant, and recommends its adoption by the vestry of the parish.

OBSERVATIONS appear to show that the proportion of argon in exhaled air is slightly less than that in inhaled (1.21% as against 1.186%). It had been suggested as possible that argon formed a compound with the hemoglobin of the blood. This seemed the more probable from the fact that when analyzed by the Kjeldahl method, where the nitrogen is converted into ammonia, the amount of nitrogen obtained from hemin is less than that by the Dumas method, where the nitrogen is measured absolutely. In the last *Berichte* J. Zaleski, of St. Petersburg, describes careful examination of preparations of the coloring matter of the blood for argon, but in no case was a trace of argon found, so that some other explanation must be sought for the analytical differences.

THE constitution of phosphorous acid has been a matter of doubt, for though much evidence points to $OPH.(OH)_2$ its formation by the action of water on PCl_3 points to $P(OH)_3$. The ester $P(OC_2H_5)_3$ is known, being formed, however, not from the acid, but by action of $Na(OC_2H_5)_3$ on PCl_3. Michaelis and Becker describe in the last *Berichte* the formation of an isomeric ethyl ester directly from phosphorous acid by the successive action of lead acetate, giving lead phosphite; ethyl iodid, giving diethyl phosphorous ester; metallic sodium, replacing the hydrogen atom, and ethyl iodid, giving $OPC_2H_5.(OC_2H_5)_2$, the diethyl ester of ethyl phosphinic acid, a compound differing materially from its above mentioned isomer $P(OC_2H_5)_3$. From this it appears very probable that the true constitution of phosphorous acid is $OPH.(OH)_2$ with quintivalent phosphorus, and not $P(OH)_3$, with the phosphorus atom trivalent. Reasoning from analogy the constitution of hypophosphorous acid would be $OPH_2.OH$, which has long seemed probable.

DISCUSSION has been carried on in the *Berichte* between Dr. Emmerling, of Charlottenburg, and Dr. Gosio, of Rome, as to the cause of poisoning from fabrics, as carpets and wall papers, containing arsenic. Several moulds are known to flourish on media containing solid compounds of arsenic, among them *mucor mucedo* and *aspergillus glaucus*. In *penicillium brevicaule* Dr. Gosio finds a mould which, grown on a medium containing arsenic, evolves a volatile substance with the characteristic garlic odor of volatile arsenic compounds, and which was instantly fatal to a mouse. The nature of this compound is, however, undetermined, and Dr. Emmerling doubts its existence. His doubts are based on the fact that he has obtained no evidence of its existence, using the *mucor* and the *aspergillus*, though he has not experimented with the *penicillium*. It is to be hoped that others will succeed in obtaining the volatile arsenic compound if it really exists, and settle finally this long controverted point in toxicology.

J. L. H.